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A New Species of *Isectolophus* (Mammalia, Tapiroidea) from the Middle Eocene of Wyoming

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Abstract

A partial right dentary bearing M_3 from the middle Eocene (Bridger) of Wyoming represents a new species of *Isectolophus* here designated ***I. radinskyi.*** *I. radinskyi* differs from all other *Isectolophus* in its smaller size; it is intermediate in size between *Homogalax protapirinus* and its supposed descendant *Isectolophus latidens.*

Key Words

Isectolophus, Tapiroidea, Bridgerian, Eocene, fossil mammal.

Introduction

Among the previously uncatalogued middle Eocene fossil mammal remains from the Green River (Bridger) Basin, Wyoming, housed in the Yale Peabody Museum, New Haven (YPM), is a partial dentary bearing M_3 of a tapiroid which represents a new species of *Isectolophus.*

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Systematic Paleontology

Class Mammalia Linnaeus, 1758
Order Perissodactyla Owen, 1848
Suborder Ceratomorpha Wood, 1937
Superfamily Tapiroidea Burnett, 1830 (Gill, 1872)
Family Isectolophidae Peterson, 1919
Genus *Isectolophus* Scott and Osborn, 1887
Isectolophus radinskyi Schoch, new species
(Fig. 1, Table 1)

Holotype

YPM 40262, partial right dentary with posterior root of P_3, roots of P_4–M_2 and complete M_3.

Horizon and Locality of the Type

Middle Eocene (Bridgerian) aged strata of the Bridger Formation, Green River (Bridger) Basin, Wyoming. Collected by L. LaMothe and J. W. Chew at Lone Springs, Wyoming, July 1874.

Hypodigm

Known only from the holotype.

Etymology

Named for Leonard B. Radinsky in honor of his many contributions toward a better understanding of tapiroid evolution.

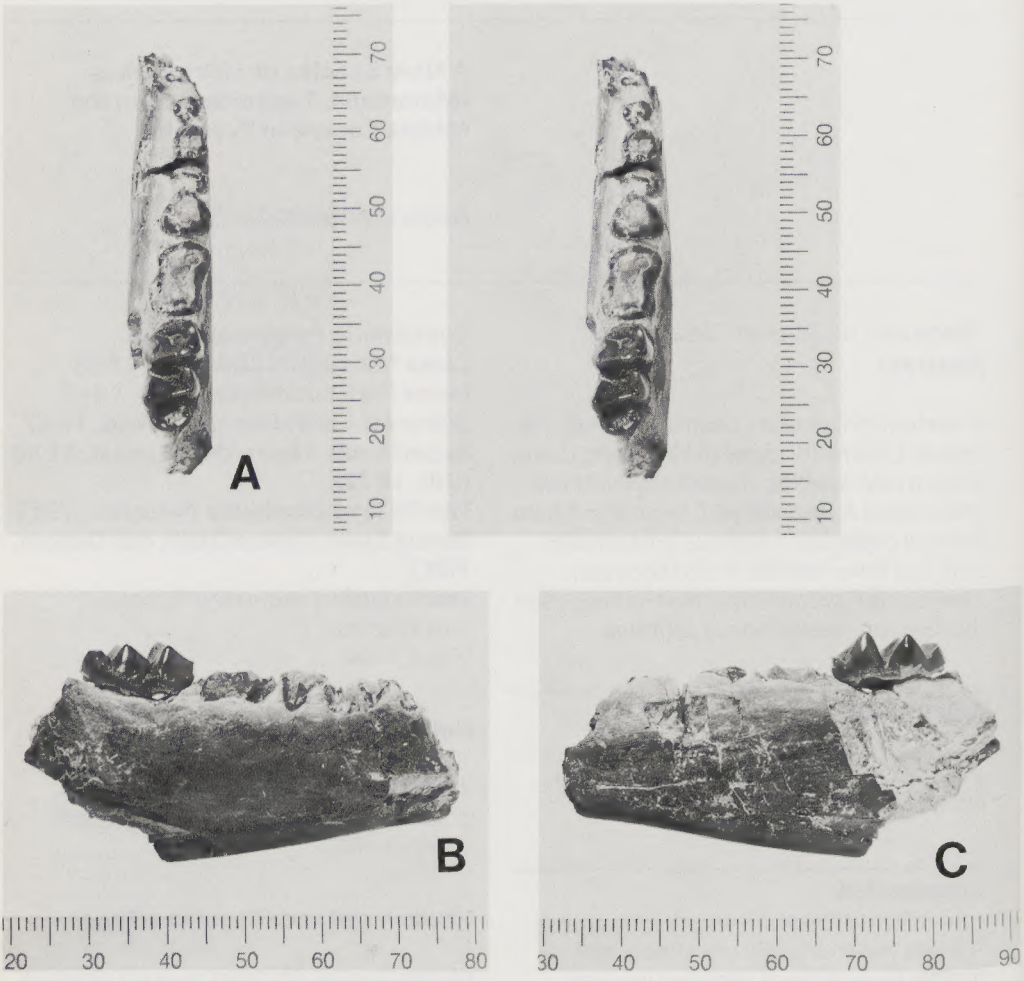

Fig. 1
Isectolophus radinskyi Schoch, new species, YPM 40262 (holotype), right dentary with M_3: A, occlusal view, stereo pair; B, labial view; C, lingual view. Scales are in mm.

Diagnosis

Smallest known species of *Isectolophus:* length of M_{1-3} approximately 35.2 mm; dentary slightly shallower than that of *Isectolophus latidens.*

Description

YPM 40262 consists of a partial right dentary which bears a fragment of the posterior root of P_3, the roots of P_4–M_2 and the complete M_3. P_3–M_3 are all double-rooted and increase in size posteriorly. The preserved portion of the dentary is comparable in morphology to that of *Isectolophus latidens,* although somewhat shallower and more gracile (depth of ramus under M_{1-2} = 21.0 mm).

M_3 of *Isectolophus radinskyi* is virtually identical in morphology to the M_3 of other species of *Isectolophus,* although much smaller in size. The transverse protolophid and hypolophid are parallel to one another, and very slightly notched in their centers (such that the protoconid and metaconid, hypoconid and entoconid remain relatively distinct) and trend slightly anterolabially. The protolophid is very slightly higher than the hypolophid. The metaconid is very slightly higher than the protoconid; there is no metastylid. The paralophid is represented by a low anterolabial and anterior ridge. The metalophid is low and extends from the apex of the hypoconid to the posterolingual base of the protoconid. The trigonid and talonid (excluding the hypoconulid lobe) are subequal in length and width. The hypoconulid forms a large, broad, posterior heel bounded labially and posteriorly by a ridge which is highest labially (about half the height of that of the hypoconid) and decreases in height posterolingually. This ridge is minutely cuspidate and bears a shallow, posterior notch positioned slightly lingual to the anteroposterior midline of the tooth. M_3 bears a low, minutely cuspidate cingulid on its anterior and labial sides.

Discussion

Radinsky (1963) rediagnosed, revised and described *Isectolophus,* recognizing two species, the smaller and earlier *I. latidens* (middle Eocene, mean length M_{1-3} = 40.4 mm) and the somewhat larger and later *I. annectens* (late Eocene, mean length M_{1-3} = 46.8 mm). In preserved parts YPM 40262

Table 1

Measurements (in mm) of M_3s of *Isectolophus latidens* and *Isectolophus radinskyi,* new species.

	Length	Width
Isectolophus latidens		
YPM 12563	17.9	9.0
YPM 15297	18.7	9.1
YPM 15298	18.0 ±	—
YPM 16337	17.5	8.5+
Isectolophus radinskyi		
YPM 40262	15.2	7.8

is identical to *I. latidens,* except for its smaller size (Table 1). YPM 40262 is within the size range of the early Eocene isectolophid *Homogalax protapirinus.* However, it differs from *Homogalax* in lacking a metastylid on M_3. Metastylids are always present on the M_{1-3} of *Homogalax* (Radinsky 1963). Among other known Eocene North American tapiroids, YPM 40262 is within the size range of the early Eocene helaletid *Heptodon calciculus* and the middle Eocene *Helaletes nanus.* However, YPM 40262 differs from these species, and all Helaletidae, in bearing a relatively unreduced metalophid and a long and broad (large) hypoconulid on M_3. In helaletids the M_{1-3} metalophids are greatly reduced and the M_3 hypoconulid is short and narrow or lost (Radinsky 1963). Thus, based on the morphology of M_3, YPM 40262 is referable only to the Isectolophidae, and of the two genera composing this family it is closest morphologically to other species of *Isectolophus.* Based on the lengths of M_{1-3} in the known species of *Isectolophus* (Radinsky 1963), *I. latidens* is approximately 14 percent smaller than *I. annectens* and YPM 40262 is approximately 13 percent smaller than *I. latidens.* On this basis I coin the name *Isectolophus radinskyi,* new species, for YPM 40262, the smallest known species of *Isectolophus.*

Radinsky (1963, p. 74) postulated that *Homogalax protapirinus* gave rise to *Isectolophus latidens.* The discovery of *Isectolophus radinskyi* supports this hypothesis. *Isectolophus radinskyi* is intermediate between these two forms; it is within the size range of *Homogalax protapirinus,* but in nonmetric morphology is identical to *Isectolophus latidens.*

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